WILD TURKEYS AND AGRICULTURE

Turkeys thrive where woodland edges are near crop fields. Throughout the year, but particularly during the growing season, the birds are attracted to fields of hay, oats, and corn. After the harvest, they often find waste grain, weed seeds, and insects in these same fields.

Turkeys are also gregarious, forming flocks of 30 or more in summer and fall and 100 or more in winter. As the turkey population grew in the 1980s, these large flocks were a frequent daytime sight in crop fields. Understandably, farmers became concerned about the potential for crop damage. Consequently, in 1987 the University of Wisconsin-Extension randomly surveyed 500 southwestern Wisconsin farmers regarding their perceptions about turkeys and crop damage.

Although most farmers saw turkeys on their land, only 9% considered them a major problem. Just under half the respondents claimed some damage by turkeys, but more than half of those considered the damage economically insignificant or minor. The DNR began a three-year study in 1988 to verify and document turkey damage to agricultural crops in southwestern Wisconsin. It focused on how turkeys use agricultural habitats and foods during the growing season. The next sections discuss study results.

Habitat Use by Hens During Summer and Fall

Research on how adult hens and their young use habitat was conducted in Vernon County from 1988 to 1990. The 135-square-mile study area was 35% crop fields, 48% woodlands, and 17% idle fields and pasture. Research concentrated on hens because they often formed large brood flocks during the growing season and caused the greatest concern among farmers who perceived some level of crop damage by turkeys.

MICHAEL JOHNSON

Radiotelemetry

Radiotelemetry is a valuable research technique because wild turkeys are extremely wary and difficult to approach. Radiotelemetry allows researchers to locate turkeys from a distance and document their behavior while the birds move freely, undisturbed. Turkeys are captured in winter using rocket-powered nets, and each bird is fitted with a backpack transmitter with an unique radio frequency. The birds are then released near the capture site.

Using a radio receiver and directional antenna, researchers can hear the radio signals from birds as far as 2 miles away. As the antenna rotates, the radio signal changes strength, growing strongest when the antenna points toward the radio-equipped bird. By measuring antenna direction at three or more locations (such as road intersections) and plotting these directions as lines on a map, the biologist can locate the turkey where the lines cross.

Radiotelemetry provides information on habitat use, home range size, dispersal distances, reproductive success, and survival.

PHOTOS: JOHN KUBISIAK

Forty-one radio-equipped hens, 16 with broods and 25 without broods, were located more than 700 times during summer. During fall, 18 hens were located more than 300 times. Radio-equipped turkeys in Vernon County spent most of their daylight hours in woodlands, averaging 59% in summer, and 68% during fall (Figure 11).

Turkeys used crop fields and pasture or idle land considerably less often than woodlands. Twenty-eight percent of the summer locations and 17% of the fall locations were in crop fields. Only 13% were in pasture or idle land during summer compared to 14% during fall. Availability of preferred foods affects turkeys' use of the woodland edge and adjacent crop field or pasture. The fall increase in woodlands use and decline in crop field use may be related to more maturing wild woodland foods and poults' lower need for insects.

In the summer hens with broods used agricultural crop fields more (35% versus 20%) and woodlands less (55% versus 64%) than hens without broods. In this season, broods are strongly attracted to recently cut hay or oat fields because insects are abundant and easily accessible. Grasshoppers, crickets, and many other insects provide turkey poults with a source of protein important for their growth.

Use of Agricultural Crops by Turkeys

As part of their study, DNR wildlife managers investigated crop damage complaints attributed to turkeys with help from the U.S. Department of Agriculture Animal and Plant Health Inspection Services-Wildlife Services. Of 28 turkey damage complaints during 1988-90, investigators confirmed just 5 (18%) as caused by wild turkeys, and only one was considered significant. Deer actually caused 54% of the cases and raccoons 25% (Figure 12). Where turkeys did cause damage, 3 were to mature corn, one to immature corn, and one to multiple crops.

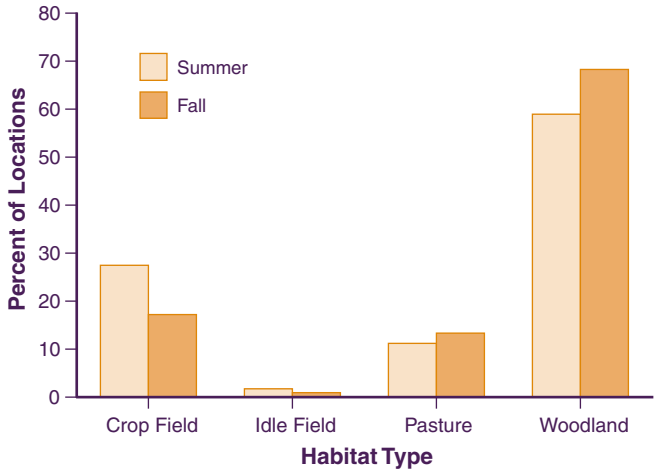


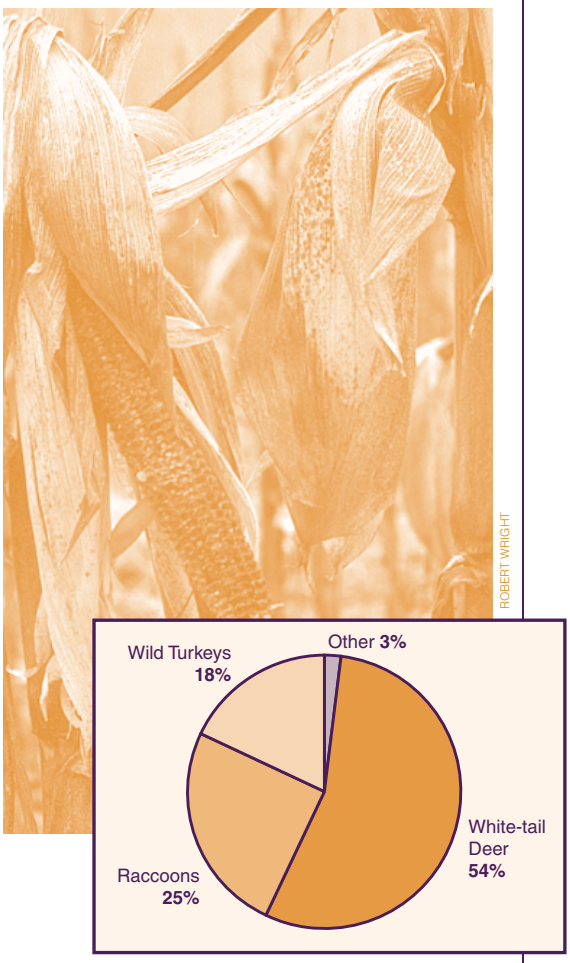
Figure 11. *Habitat use (percent of locations) by radio-tagged wild turkey hens in southwestern Wisconsin, 1988-90.*

NEAL PAISLEY

Hen turkeys with broods use agricultural crop fields more and woodlands less during the summer months than hens without broods.

According to some reports, turkeys had damaged alfalfa, oats, soybeans, sprouted peas, grapes, and cherries. However, unless damage is reported and investigated within a few days, it is difficult to determine whether turkeys initiated the damage, were one of several species involved, or were not involved at all.

An important part of the study involved examining digestive tract contents of turkeys shot while actively foraging in crop fields. This intensive effort provided some of the best information about potential turkey damage to agricultural crops. DNR researchers investigated diets this way during the growing seasons of 1988 through 1993 and also by collecting digestive tracts supplied by hunters from birds harvested legally in spring and fall of those years.



ROBERT WRIGHT

Figure 12. *Wildlife species responsible for agricultural crop damage initially blamed on wild turkeys in southwestern Wisconsin, 1989-90. Turkeys caused less than 20% of animal damage cases, and only one case was considered significant.*

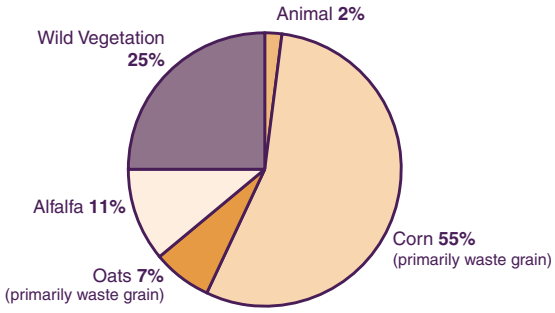


Figure 13. *Diet of wild turkeys during spring in southwestern Wisconsin, 1989-93.*

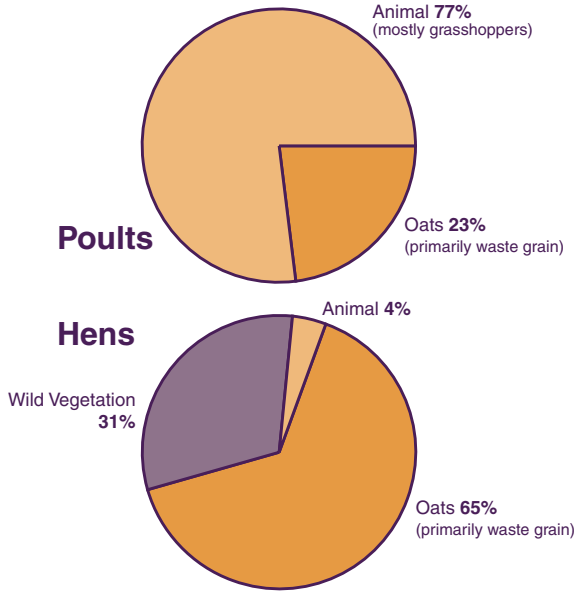


Figure 14. *Diet of wild turkey poults and hens feeding in agricultural fields in southwestern Wisconsin during summers of 1988-92.*

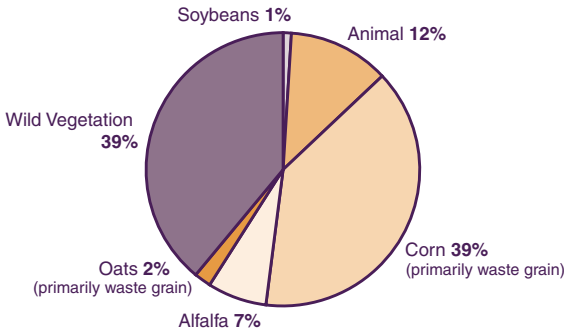


Figure 15. *Diet of fall-harvested wild turkeys in southwestern Wisconsin, 1989-92. More than 90% of the corn consumed was waste grain.*

Spring — Agricultural foods were three-quarters of the diet of 109 turkeys collected during spring. Fifty-five percent of the volume was waste corn from the previous growing season (Figure 13), alfalfa leaves were 11%, and waste oats 7%. Wild vegetation, mostly dandelion flower heads, accounted for 25% of the remaining volume. Grasses and a legume called black medic were other important wild foods. Animal matter, mostly earthworms and snails, was only 2% of the diet.

Summer — Six adult hens and 39 poults were collected from 15 brood flocks. We selected brood flocks of up to 40 birds because farmers were greatly concerned about potential crop damage. Animal matter, mostly grasshoppers, was a major component of the summer diet of poults, comprising 77% of the volume of digestive tract contents. In contrast, only 4% of the adult summer diet was animal matter (Figure 14). Mature oats, mostly from wind-damaged or harvested fields, made up 23% of the diet volume for poults. (The biologists who collected the birds noted the field conditions.) Adult hens used oats significantly more than poults (65% of the diet volume versus 23%). Corn and alfalfa were unimportant to brood flocks in summer. Wild vegetation, primarily fruits, acorns, and nuts, was 31% of the food volume for hens but was found in only trace amounts in poults.

Fall — Examining 250 turkey digestive tracts provided by hunters during fall showed that agricultural foods were 49% of the volume. The sample included 136 adult, 93 sub-adult (birds less than 1 year old during their first fall), and 21 unknown-age turkeys. Corn accounted for 39% of the total volume and was eaten in relatively large amounts when available (Figure 15). More than 90% of the corn consumed was waste corn — as indicated by dirty, broken, or weathered kernels — eaten when turkeys moved into fields after harvest. Alfalfa leaves accounted for 7% of the volume, and waste oats and soybeans made up only 3% of the diet.

Wild vegetation of widely varied types was 39% of the digestive contents, illustrating turkeys' opportunistic feeding patterns. Primary items were acorns, hickory nuts, fruits of gray dogwood and Virginia creeper, wild grapes, foxtail seed, and other wild seeds. Acorns and nuts were only 12% of the total fall diet volume, but production of acorns and nuts was poor during the collection period. The diet was 12% animal matter, predominately grasshoppers, but we also found crickets, beetles, and leafhoppers.

WHAT WAS THE BOTTOM LINE on Agricultural Damage?

Agricultural habitats are important to wild turkeys during the growing season. About half the diet was agricultural, but corn, nearly all waste corn, accounted for about 75% of the volume of all agricultural foods consumed. Invertebrates, principally grasshoppers, were the most important summer food for poults. This insect eating may actually benefit farmers, as might the birds' weed intake as well. Turkeys did damage some agricultural crops, but the economic loss was minimal. Most of the damage that farmers blamed on turkeys was actually caused by other wildlife species. Regardless, the perception that turkeys cause significant agricultural crop damage led to legislation in 1999 adding them to the list of species acceptable for crop damage payments to farmers.

Corn, nearly all waste corn, accounted for about 75% of the volume of all agricultural foods consumed. Invertebrates, principally grasshoppers, were the most important summer food for poults.